Docket 96-45
FCC NPRM Regarding
The Implementation of Universal Service
As per the 1996 Telecommunications Act

Filed by
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The Mendocino Unified School District is a small, rural school district in Northern California. It has approximately 1,000 students in the 4th largest geographical school district in California.

For the past four and half years, the district has aggressively implemented the use of telecommunications and the Internet into the classroom and curriculum. We have formed partnerships with the Federal Government through NASA's IITA K-12 Internet Initiative, the private sector as a model site for Pacific Bell's Education First project, and Apple Computer, and with a corporate foundation, the Autodesk Foundation.

Our nationally recognized telecommunications curriculum initiatives span the range of grade levels from kindergarten to high school and cover all curriculum areas. Every classroom and four computer labs are all hooked up to the Internet as well as ISDN videoconferencing capability. We are also leaders in the display of telecommunications infused curriculum using the Internet and are nationally known for our "Living Curriculum" concept available on our web site at http://www.mcn.org/ed/cur/liv. Students daily use the Internet at all grade levels and in all curriculum areas to study everything from birds to geography to Ancient Egypt.

In addition, as a district, we are owners and operators of the Mendocino Community Network, the internet service provider for 750 dial-up subscribers and over 75 businesses on the Northern California Coast.

As a school consistently recognized as being on the leading edge of telecommunications curriculum development and as an owner/operator of an Internet service providing business, our district feels qualified to address many of the areas for which comment has been solicited by the FCC in regards to universal service needs for the modern, American classroom.

"We seek comment on what services, in addition to the core services discussed in Section III, should be made available to schools..."

"We seek comment on what functionalities should be supported through universal service mechanisms for schools and libraries and what facilities are required to provide those functionalities."

The modern and future schools of our country will be based on local area networks (LAN) and the hardware and leased lines used to support them. In Mendocino, all of our schools outgrew the modem phase and required the implementation of LAN's as a necessity for each student and teacher to be able to take full advantage of the vast treasure of information and curriculum opportunities provided by an Internet connection. Economy of scale savings can be realized by schools using this approach as opposed to installing individual phone lines across a facility. Leased lines capable of supporting every computer in the school are critical to allow students the access needed to do research, discuss issues with experts, and participate in video conferences. Again, it is key that LAN based lease lines must be a part of universal service in order for the power of modern telecommunications to reach <u>each student</u> and for districts and schools to maximize their investment in computer hardware.

These leased lines will allow multiple students in a variety of classrooms or labs at a single school all to have access to the Internet for the purposes of doing research that in many cases would be unavailable to them otherwise. Many schools, including ours, are moving to various forms of block scheduling thus allowing student longer periods of time to investigate and study the wealth of material available on the Internet. Thus services provided must be able to span any school facility and not make location on the site nor volume of traffic an issue in using telecommunications. Without this component, the change in our society envisioned by the authors of the act will not occur.

Increased, dedicated bandwidth will also increase the ability of students to become active participants with the internet. Telecommunications expert Al Rogers has coined the phrase "Take-maker paradigm shift" to describe the next wave of educational telecommunciations. Through the use of dedicated IP addresses and dedicated hardware, students are now creating information about their studies for

display on the Internet. As an example, students in 1st and 4th grade, and at our high school in Mendocino, as part of the California web project, are collecting information about our local history and displaying it on the world wide web. Thus any student studying local history will be able engage our students work. Such work as this will be critical training for students in the technology-information age and is not available without dedicated, higher bandwidth lines.

> *"Finally, we also invite comment on how our special definition of services for schools and libraries shouldreflect future "advances in telecommunications and information technologies and services."*

The leased line capability needs to support videoconferencing and video capabilities of the internet as a viable curriculum tool and to that end it should support not only the transmission of video and audio in a professional quality manner but should also be able to carry data transmissions so that students and teachers can use shared applications while videoconferencing transmission occurs. For example, sixth graders in Mendocino recently completed videoconferences with students in North Carolina while studying the nove, *Where the Lilis Bloom,* which was set in North Carolina. In the initial attempt at this, student completed interviews related to themes of the book, and share impressions of moder North Carolina. In the near future, this could also include geographic study using software programs and shared writing and word processing. Bandwidth will need to be available to support these types of activities. It is important to note that teachers have a limited amount of time to spend with students and delays in transmission of data and applications costs valuable educational time.

Modern teaching methodology moves away from the concept of large numbers of students in a single room facing one teacher. Modern technology must keep pace with this methodology and to that end, the bandwidth covered by universal service must maintain several videoconference/shared applications at one time on different computers either in the same classroom or at the same site so that small groups of students, teachers, researchers and other experts in the field can participate together on-demand.

Finally, the future of telecommunications fundamentally affects the delivery of curriculum materials. Even in the present time, text, graphics, video, and

software can be delivered to a site remotely. In the future, telecommunciations will be used for the primary method of examination, sharing, and implementation of curriculum materials. The necessary bandwidth to participate in this process must be provided to all teachers, students, and parents.

> *"Next, we consider ways to implement the support mechanisms for schools, libraries and rural health care providers. For schools and libraries, we seek comment on how to formulate discount methodologies that ensure that each discount is "an amount that . . . is appropriate and necessary to ensure affordable access to and use of such services by such entities."*

It is important to note the ways in which schools are funded. As is the case with many Federal agencies, yearly funding is the model and it is difficult for schools to work with fluctuating costs once the school budget is in place. To this end, it is critical that funding mechanisms which provide services at a flat rate or a choice of flat rates that are neither distance nor time sensitive be in place to encourage schools to take full advantage of telecommunications services. Sadly, today in school districts across America, students are deprived of even basic telephone, and hence telecommunciations services, because administrators in charge of school finances fear any cost which cannot be measured precisely.

> *"The Act instructs that "telecommunications services and network capacity" provided to schools and libraries through universal service support mechanisms "may not be sold, resold, or otherwise transferred by such user in consideration for money or any other thing of value." We ask commenters and the Joint Board to address whether this provision will affect the ability of schools and libraries to receive universal service support if they are sharing a network with parties who are not eligible to receive support and what mechanisms could ensure that this provision*

does not discourage partnerships between schools and libraries and their communities. "

As the owner of an Internet service providing business, we are acutely aware of the problems posed by this section of the act. We provide internet access to four school districts, businesses, non-profit organizations and individual users. We feel that the amount of bandwith delivered to a school is clearly measurable and should be able to be deducted in partial segments by telecommunciations providers, thus encouraging telecommunications providers to "go the extra mile" to include schools in the planning and construction of wide area network services.

The use of shared telecommunciations bandwith should not be hindered by the implementation of this act; in fact, it should be encouraged as a way to make communities come together as it has in our region, to make the most of resources. Often, in such a rural setting a school, library, or health provider may not be able to, on their own, support the infrastructure needed to supply advanced telecommunications services for the benefit of those in need, even if the universal service was provided to them. Without the ability to identify universal service as segments of larger bandwith, the act would in effect punish schools and health care providers by separating them from community networking efforts and requiring them carry the financial burden of acting independently of the communities they serve. This could deprive students of access.

We invite comment on what steps we should take to ensure that this requirement is met. One possible approach would be to have the school or library provide the carrier with a written certification that the requested services will be used for educational purposes and will not be "sold, resold, or otherwise transferred by such user in consideration for money or any other thing of value."

We ask for comment and Joint Board recommendation on how to determine with as much precision as possible whether such a request is "bona fide."

Schools have administrative procedures for the procurement of existing telecommunciations systems. These should be used to determine who has authority to order such systems. There is no need to spend precious educational dollars on another level of bureaucracy.

Schools should specifically be allowed to use telecommunications services covered under universal service if they so choose to set up home access systems for teachers and students to work remotely from their homes. It is our experience that a key element of the success of our curriculum work was this very concept. The teachers in our schools worked long, dedicated hours to complete the day to day tasks of teaching. We are asking them to take a giant leap forward and to move the students of the future into the 21st century using sophisticated and complex tools for which they have little training. Often their first steps toward doing this happen in the evening or on the weekend when they have time to explore this wonderful new resource at home vial dial-up access. Also students need to be able to have access to these systems from their homes to remotely transfer files necessary for homework, continue their research and to correspond and carry on their studies outside the classroom, in effect participating in virtual learning environments. Such connections also allow parents to play a role in their student education at home.

It is our strong feeling that a special exemption be made for schools implementing such a dial-up system as long as the accounts are free or sold on a cost-recovery basis to a specific and identified parents, students, and teachers for the purpose of doing education related work and equitable to all staff and students. The school will make a considerable financial investment just to set up the hardware--universal service should support such efforts and bandwith used for such projects should be deemed "educational purpose" rather than "thing of value".

> *Specifically, we ask whether the "advanced telecommunications and information services" addressed in Section 254(h)(2) should be a broader, narrower, or identical group to those supported under Section 254(h)(1)*

In closing, we have seen through our own efforts, the academic advancements made by students with access to today's modern telecommunication systems. Our students continue to excel at every level, in some part because they have access to modern educational technologies. In the four years we have used telecommunciations we have seen enormous improvement in the material and

knowledge available to students, the tools they use to access that knowledge, and the quality and power of their educational experience . Access to services must be promoted and worthwhile to everyone from the provider of the service to the student using them and everyone in between. To this extent, items in Section 254(h)(1) and (2) should be identical.

Respectfully Submitted,

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